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920476-904712

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EXAMINER: A. Waxman

GROUP ART UNIT: 2667

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Attached: Response To Office Action Of October 28, 2003

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December 29, 2003

920476-904712

IN THE UNITED STATES PATENT AND
TRADEMARK OFFICE

In the application of	:	B M Unitt et al
Serial No.	:	09/375,710
Filed	:	August 17, 1999
For	:	Packet Communications System and Method
Examiner	:	A Waxman
Art Unit	:	2667

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Signature

RESPONSE TO FINAL OFFICE ACTION MAILED OCTOBER 28, 2003

Honorable Director of Patents and Trademarks
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir,

This is responsive to the Final Office Action mailed October 28, 2003.

Claims 1 to 9 & 15 to 23 are currently pending. The applicants offer no further amendment of these claims since, in the applicants' view, the claims define an invention which would not have been obvious in view of the prior art references relied on by the Examiner taken in any combination.

The present invention is directed to utilizing an existing low bandwidth subscriber loop, such as a twisted copper pair, to provide both voice and data services (e.g. Internet access) simultaneously to a subscriber. At the subscriber location, both the subscriber's voice and data traffic flows are separately converted into respective internet protocol (IP) packets streams. A problem with IP is that IP packets can be very long, relatively speaking. As such, multiplexing the separate IP packet streams comprising the voice and data traffic flows to

transmit them over the subscriber loop can lead to unacceptable delays in voice IP packets being despatched on the subscriber loop. Such packet transmission delays can cause voice calls to suffer interference such as echoing or for two-way conversation to become impossible. The present invention addresses this problem by separately segmenting the IP packets from each of the voice and data IP packet streams into respective ATM cell streams and then multiplexing the resultant streams of shorter ATM cells for upstream transmission on the subscriber loop. The conversion of the traffic streams from IP to shorter ATM packets limits the potential transmission delay of an ATM voice traffic packet. Also, the ATM voice traffic packets can be given transmission priority over the ATM data traffic packets.

The present invention therefore provides a solution to a problem encountered in low bandwidth local subscriber loop access networks.

It is the Examiner's position that this invention would have been obvious under 35 U.S.C. §103 in view of a combination of prior art references Brueckheimer (US6519261) and DeNap (US6490273). The applicants respectfully disagree.

Brueckheimer (owned by the assignee of the present application) is directed at one possible means of integrating the two types of high capacity legacy communications networks that comprise the majority of the world's telecommunications infrastructure to provide both data and voice services over the integrated legacy networks. In recent decades, dedicated connectionless, broadband data networks have expanded rapidly to address users' data service needs. However, traditional connection-oriented or circuit-switched voice network operators are not prepared to discard the massive capital investment in their voice networks to replace them by data networks having a voice capability. Brueckheimer addresses this issue by proposing an inter-working function for adaptation of communications traffic into selected asynchronous transfer mode (ATM) formats from high capacity time division multiplex (TDM) (connection-

oriented) legacy networks and from high capacity IP (connectionless) legacy networks. Thus, Brueckheimer teaches an interface between three types of networks (col 5, lines 9 to 16), an ATM network as an overlay network and the two types of legacy network.

In the arrangement of Brueckheimer, traffic may pass directly between a TDM framing circuit 13, an adaptation (ATM) processor 11 and an IP framing circuit 15 for data only services. For all other traffic including voice, traffic is passed via a Codec 17 for further voice/data servicing (col 5, lines 46 to 49 and claim 9).

Brueckheimer is a network level solution for integrating high capacity legacy communications networks which is designed to have a large connection capacity and bandwidth capabilities (see for example col 4, lines 30 to 33, col 6, lines 15 to 20 & col 6, line 60 though to col 7, line8).

In contrast with the present invention, Brueckheimer does not disclose I) transporting communications traffic over a low, bandwidth communication path such as a subscriber loop; II) at a subscriber location, separately converting voice and data traffic to respective IP packet streams; III) at the subscriber location, separately segmenting the voice and data IP packet streams to respective ATM cell streams; and IV) at the subscriber location, multiplexing the ATM cell streams for transmission on the low bandwidth communications path from the subscriber location.

While the Examiner will, no doubt, dispute that there are four such distinct differences between the teaching of Brueckheimer and the present invention, the above serves to highlight just how considerably different the communication arrangement of the present invention and its application are from those of Brueckheimer in that the present invention is directed to access problems connected with a subscriber location and its low bandwidth communications path (subscriber loop) and not to the integration of high capacity legacy networks.

DeNap is directed to a series of architectures that are implemented in phases to provide a migration path from an initial ATM service offering to a full service ATM network. DeNap does disclose an ATM interface with both data and voice flowing into the device. It also discloses an embodiment with an XDSL/ATM interface. However, DeNap makes no suggestion of, at a subscriber location, converting voice traffic to an IP packet stream, to then separately segmenting the voice packet IP stream and a data traffic IP packet stream to respective ATM cell streams and to multiplexing these cell streams for transmission on an ATM enabled link.

To establish a prima facie case of obviousness, three basic criteria must be met:

A)   there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine reference teachings;

B)   there must be a reasonable expectation of success; and

C)   the references when combined must teach or suggest all the claims limitations.

Considering A), the Examiner suggests that the motivation for including the method for the networking system of DeNap into the system disclosed by Brueckheimer is *"to necessarily separate data and multiplexing of ATM traffic to various subscribers thereby presenting the capabilities of ATM voice, data and video type services to businesses as well as individual consumers by integration and adaptation efforts"*. The applicants have studied this quote by the Examiner very carefully and has been unable to comprehend it. The Examiner is therefore asked to restate in more clear and precise terms what he considers to be the motivation for combining DeNap with Brueckheimer and, when doing do, to reflect on the fact that the portion of either DeNap or Brueckheimer (background information, col 1, lines 65 to 67) which the Examiner has identified as supporting

his supposition does not reflect what the Examiner states as quoted above. In fact, the applicants have not been able to comprehend this either.

Notwithstanding the above, the applicant is of the view that a skilled person would not be motivated to combine DeNap and Brueckheimer since DeNap addresses the issue of how to migrate an end user such as an individual or a business to a full ATM network service through phases but ignores entirely the conflict that can occur between providing voice and data services over a low bandwidth communications path such as a subscriber loop. In the case of Brueckheimer, this addresses the issue of how to integrate the two types of high capacity legacy networks to an ATM network and equally ignores the local access issue addressed by the present invention. There is therefore nothing in DeNap or Brueckheimer that would lead a skilled person to contemplate combining the teachings of these references.

Considering B), a skilled person would readily comprehend that DeNap addresses a subscriber side of an ATM network whereas Brueckheimer addresses an inter-network connection of an ATM network with legacy type networks. Therefore, even if it were contemplated to combine the teachings of DeNap and Brueckheimer, the skilled person would connect the network arrangement as taught by DeNap to a subscriber side of the ATM network (ATM network cloud, figure 1, Brueckheimer) of Brueckheimer and not in the midst of the high capacity inter-working interface that forms the 'junction' between the ATM network and the two legacy networks as taught by Brueckheimer. Consequently, there can be no expectation that a combination of Brueckheimer and DeNap would result in a subscriber loop arrangement as claimed.

Considering C), neither Brueckheimer nor DeNap teaches, at a subscriber location, converting voice traffic to an IP packet stream, to then separately segmenting the voice packet IP stream and a data traffic IP packet stream to respective ATM cell streams and to multiplexing these cell streams for

transmission. Therefore, these references clearly do not teach all of the claim limitations.

In view of the foregoing, the rejection of claims 1 to 6 & 15 to 23 having regard to a combination of Brueckheimer and Denap does not succeed on any of the three tests for obviousness and therefore the rejection of these claims is unsound.
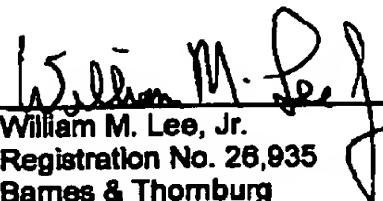
Other grounds of rejection are moot in view of the above.

The applicants submit that the presently pending claims define an invention that is patentable over the prior art of record. Favorable reconsideration of the claims is requested.

This response is filed within two months, as December 28, 2003 was a Sunday.

December 29, 2003   Respectfully submitted,

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